CLAIMS

1. A lithium secondary battery comprising:

an electrode body having a positive electrode, a negative electrode, and a separator, the positive electrode and the negative electrode being wound or laminated by means of the separator, and

a nonaqueous electrolyte solution containing a lithium compound as a electrolyte;

characterized in that at least one of the positive electrode, the negative electrode, the separator, and the nonaqueous electrolyte solution contains at least one of:

(a) an organic and/or inorganic inhibitor, which functions as a Cu-corrosion inhibitor or a Cu-trapping agent,

(b) a compound having an organic base and an inorganic acid which are unitarily combined in a molecule,

(c) a cyclic compound containing a N-O radical in a molecular structure,

(d) a cyclic compound which becomes a Mn^{2+} supplier in the nonaqueous electrolyte solution,

(e) a compound containing an atom showing Lewis acidity and an atom showing Lewis basisity in one molecule molecular-structurally,

(f) a three-dimensional siloxane compound, and

(g) a nonionic surfactant; or

the nonaqueous electrolyte solution contains:

(h) a water-extracting agent, or

(i) a hydrofluoric acid-extracting agent.

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2. A lithium secondary battery according to claim 1, wherein a central element of a polar group of said organic inhibitor contains at least one selected from the group consisting of N, P and As in 5B group and O, S and Se in 6B group of the periodic table.

3. A lithium secondary battery according to claim 1, wherein said organic inhibitor is a sulfur compound.

4. A lithium secondary battery according to claim 1, wherein said organic inhibitor is an imidazole-analogue organic compound.

5. A lithium secondary battery according to claim 1, wherein said inorganic inhibitor is one selected from the group consisting of phosphates, chromates, iron, or ironic compounds, nitrites, and silicates.

6. A lithium secondary battery according to claim 1, wherein said organic base of said compound (b) is a cyclic compound containing an electron-donating element.

7. A lithium secondary battery according to claim 1, wherein said organic base of said compound (b) contains an electron-donating substituent.

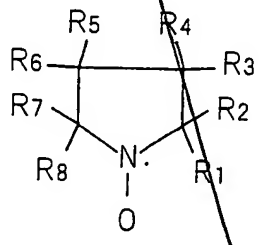
8. A lithium secondary battery according to claim 1, wherein said inorganic acid of said compound (b) is a strong acid.

9. A lithium secondary battery according to claim 1, wherein said inorganic acid of said compound (b) is hydrogen chloride or sulfuric acid.

10. A lithium secondary battery according to claim 1, wherein said cyclic compound containing a N-O radical in a molecular structure is a compound having one ring.

11. A lithium secondary battery according to claim 1, wherein said cyclic compound containing a N-O radical in a molecular structure is a compound having a molecular structure shown by the following general formula (I);

General formula (I):

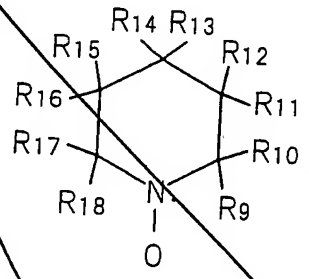


(R_1 – R_8: a hydrogen radical, a hydrocarbon radical, or a cyano

radical)

12. A lithium secondary battery according to claim 1 or 2, wherein said cyclic compound containing a N-O radical in a molecular structure is a compound having a molecular structure shown by the following general formula (II);

General formula (II):

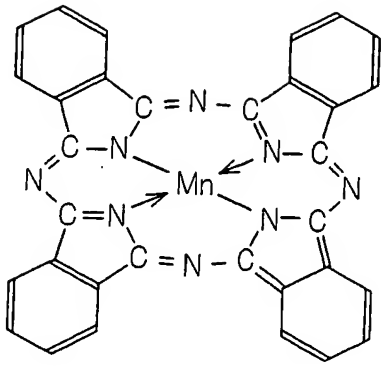


($R_9 - R_{18}$: a hydrogen radical, a hydrocarbon radical, or a cyano radical)

13. A lithium secondary battery according to claim 1, wherein said cyclic compound which becomes a Mn^{2+} supplier is manganese (II) phthalocyanine or a manganese (II) phthalocyanine derivative.

14. A lithium secondary battery according to claim 1, wherein said compound (e) is alumatrane tetramer shown by the following chemical formula (III).

Chemical formula (III)



15. A lithium secondary battery according to claim 1, characterized in that said nonionic surfactant is a compound having an ether linkage.

16. A lithium secondary battery according to claim 1, wherein said nonionic surfactant is represented by the general formula $R_1(OR_2)_nR_3R_4$ (n is an integer), the R_1 radical and the R_2 radical are groups mainly containing hydrogen (H) and/or carbon (C), the R_3 radical is a group of oxygen (O), nitrogen (N), or an ether linkage (OCO), with linking on the side of the R_2 radical, and the R4 radical is not hydrogen (H) but a group mainly containing hydrogen (H) and carbon (C).

17. A lithium secondary battery according to claim 1, wherein said lithium compound is lithium phosphate hexafluoride.

18. A lithium secondary battery according to claim 1, wherein lithium manganate having a cubic spinel structure having

lithium and manganese as main components is used as a positive active material.

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19. A lithium secondary battery according to claim 1, wherein a carbonaceous material is used as a negative active material.

20. A lithium secondary battery according to claim 1, wherein said water-extracting agent dissolves in said nonaqueous electrolyte solution.

21. A lithium secondary battery according to claim 1, wherein said water-extracting agent is an organic phosphorous compound.

22. A lithium secondary battery according to claim 1, wherein a hydrofluoric acid-extracting agent is added to said electrolyte solution.

23. A lithium secondary battery according to claim 1, wherein said hydrofluoric acid-extracting agent is an organic silicon compound or an organic antimony compound.

24. A lithium secondary battery according to claim 1, wherein said hydrofluoric acid-extracting agent is one capable of dissolving in said nonaqueous electrolyte solution.

25. A lithium secondary battery according to any one of claims 1 – 24, wherein a capacity of the battery is 2Ah or more.

26. A lithium secondary battery according to any one of claims 1 – 25, wherein the battery is for being mounted on a vehicle.

27. A lithium secondary battery according to claim 26, wherein the battery is used for an electric vehicle or a hybrid electric vehicle.

28. A lithium secondary battery according to claim 26, wherein the battery is used for starting of an engine.